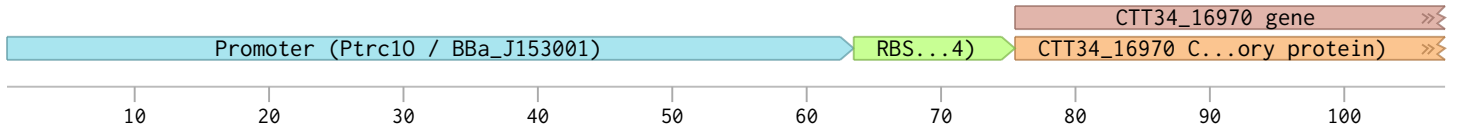
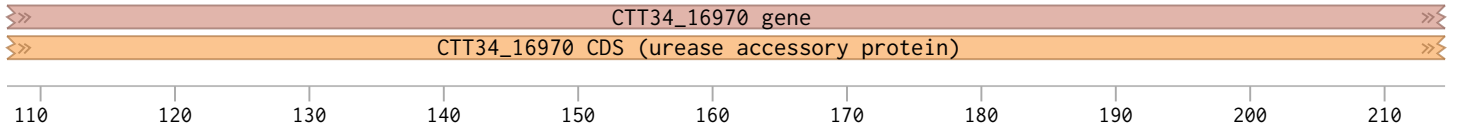


SCSIO43005_native_urease_operon (5717 bp)

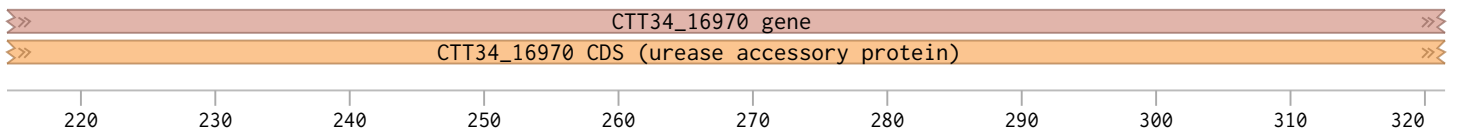
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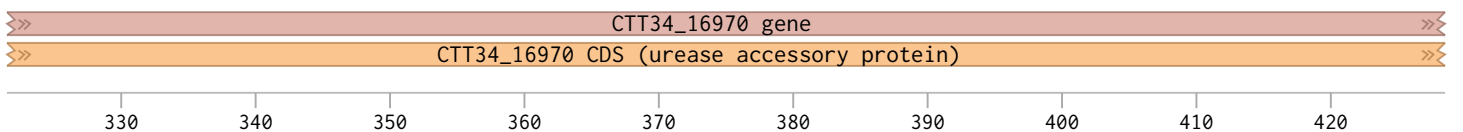
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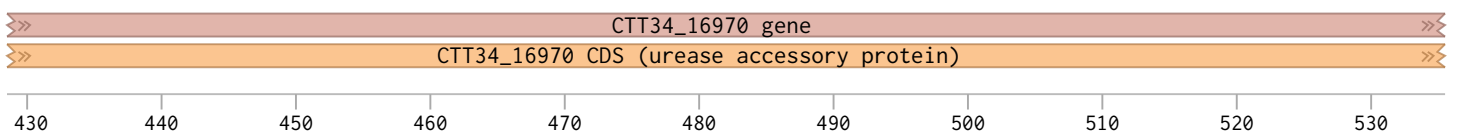
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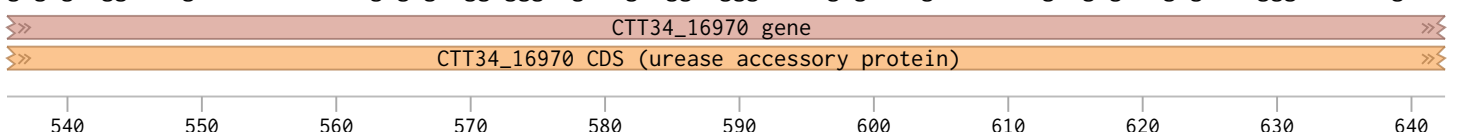
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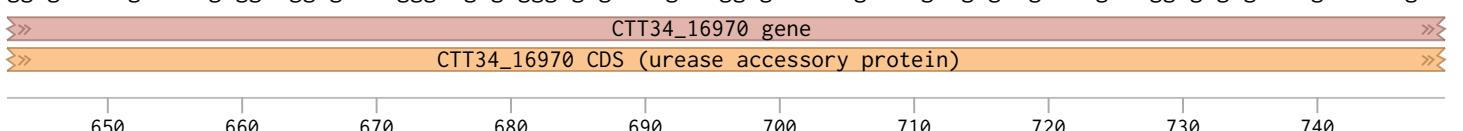
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CTT34_16970 gene
CTT34_16970 CDS (urease accessory protein)

750 760 770 780 790 800 810 820 830 840 850

catcccgtaacgaagcctggcgctgtgtgaacaggcctggcacctgcttcggccgctggatcgagcggaagcgcacacgccgcatcttggtaacctaataga
gtagggcattgcttcggaccgacacacttgcggaccgtggacgaagccggcgcgacctagctcgcgcttcgctgtgctggcgcgtaaacggattggattact

CTT34_16970 gene
CTT34_16970 CDS (urease accessory protein)

860 870 880 890 900 910 920 930 940 950 960

gcaacacgctgataacgctggagacactccatggaactgacccacgagacaaagacaagctgatgctgtttaccgcccccagcttgccgagcgcccaaagcgcg
cgttgtgcgactattgcgacctctgtgaggtaccttgactgggggtgctctgtttctgttcgactacgacaaatggcgcggggtcgacggctcgcgcgcttcgcgc

ureA gene
ureA CDS (urease subunit gamma)

970 980 990 1,000 1,010 1,020 1,030 1,040 1,050 1,060 1,070

tggtttaaactgaactacccgaagcggtagcgctgatcagctttgagattatggaagcgcgcgagatggccgacgctagcggatttaagctacggccgcg
accaaatttgacttgatggggcttcgcatcgcgactagtcgaaactctaataccttcgcgcgctctaccggcgtcgcatcgctaaattactcgatgccggcg

ureA gene
ureA CDS (urease subunit gamma)

1,080 1,090 1,100 1,110 1,120 1,130 1,140 1,150 1,160 1,170

aaatcctcaccgagacgagctgatggaagcggtggcgagatggtcgatgaagtacaggtggaagccacctccccgatggcaccaagctggtcaccgttcacag
ttaggagtggtcctgctgcactacctccgcaccgcctctaccagctactcatgtccaccttcggtggaaggggtaccgtggttcgaccagtggaagtgctgc

ureA gene
ureA CDS (urease subunit gamma)

1,180 1,190 1,200 1,210 1,220 1,230 1,240 1,250 1,260 1,270 1,280

ccgatcaactaatcatccaccattaggagagcgccatgattccaggacagtatcagttacaagagggatgatcagctgtgcgcggttcgagcgctatcaccgtg
ggctagttgattagtaggtgtaacctctcgggtactaaggctcctgcatagtcagtctcctccactatagctcgacacgcgccagcgtcgcatagtgccac

ure...ne
ure...a
CTT34_16960 gene
CTT34_16960 CDS (urease subunit beta)

1,290 1,300 1,310 1,320 1,330 1,340 1,350 1,360 1,370 1,380 1,390

gaggtggctaaccggcgaccggccattcagcttggtcccactaccatttgcgaagccaaccccgctggtgtttgaccgagataaaacccgtggctaccg
ctccaccgatgtggcgcgtggccggtaagtccaaccgaggtgatggtgaacgacttcggttggggcgcgaccacaaactggcgctatcttgggcaccgatggc

CTT34_16960 gene
CTT34_16960 CDS (urease subunit beta)

1,400 1,410 1,420 1,430 1,440 1,450 1,460 1,470 1,480 1,490

cctggacgtcgcgcccgaaccgccatccgcttcgaaccgccaaaccgcgaagtacgctgattccgcttctcggcaagcgggaaatctacggcttccgtggcg
 ggacctgcagcggcgcccttggcggtaggcgaagcttggcggcttggcgcttcagtcgactaaggcaaacagccgttcgccctttagatgccgaaggcaccgc

» CTT34_16960 gene »
 » CTT34_16960 CDS (urease subunit beta) »

1,500 1,510 1,520 1,530 1,540 1,550 1,560 1,570 1,580 1,590 1,600

atgtgatggggccgctcgattagccaacggattaataaagaacaaccgacggtagggcggcatcggtgggtgactgtctgcgccatggatggcgagtcgaagcgt
 tacactaccggcgagctaatacggttgctaattatttctgttgctgccatcccgccgtagccgaccactgacagacgcggtacctaccgctcagttcgca

» CTT34_16960 gene »
 » CTT34_16...t beta) »

1,610 1,620 1,630 1,640 1,650 1,660 1,670 1,680 1,690 1,700 1,710

acaagacgtattcacagcgtgtcacacagcagatggccgcccagcactggactcaacgcttgaggcagaggcaaatatgaaaccggtaaacaagatcagtcggcaa
 tgttctgcataagtgtcgcacagtggtctgtctaccggcgggtcgtgacctgagttgcgaactccgtctccgtttatactttggccatttgttctagtcagccgtt

» ureC gene »
 » ureC CDS (ur...unit alpha) »

1,720 1,730 1,740 1,750 1,760 1,770 1,780 1,790 1,800 1,810

gcctacgccgatgtacggccccaccgtaggcgcaccgctgcccctggcgacaccgagctgtggattcaagtcgaaaagacgccaccactacggtgaagaagt
 cggatgcccgtatacatgccgggtggcatccgctggcgacgcgaccgctgtggctcgacacctaagttcagcttttctcgggtgggtgatgccacttcttca

» ureC gene »
 » ureC CDS (urease subunit alpha) »

1,820 1,830 1,840 1,850 1,860 1,870 1,880 1,890 1,900 1,910 1,920

gaagtccggcggcgtaaagtcatccgcgatggcatggccaaagccagcgaagatgccacggtgatggacactgtgatcaccaacgcgctgattttagactggt
 ctcaagcccggccatttcagtaggcgctaccgtaccggtttcggtcgcggttctacggtgccactacctgtgacactagtggttgcgcgactaaaatctgacca

» ureC gene »
 » ureC CDS (urease subunit alpha) »

1,930 1,940 1,950 1,960 1,970 1,980 1,990 2,000 2,010 2,020 2,030

ggggcatcgtcaaagccgatgtaggtctgcaaaacggccgcatcgccccattggcaaacgaggcaaccggataaccagcccgatgtggaatcgtgattggcccc
 cccgtagcagtttcggctacatccagacgttttccggcgtagcggcgtaaccgtttcgtccgttggggctatgggtcgggctacaccttagcactaacgggg

» ureC gene »
 » ureC CDS (urease subunit alpha) »

2,040 2,050 2,060 2,070 2,080 2,090 2,100 2,110 2,120 2,130 2,140

ggcaccgaagtgattgtcggcgaaggcaaaatcctcaccgcaggtggcatcgacgccacatccactttatctgccctcagcaggtggaagaagcgcgtgatgagcgg
 ccgtggcttactaacgaccgcttccgttttaggagtggtccaccgtagctcgggtgtaggtgaaatagacgggagtcgtccaccttctcgcgactactcgcc

» ureC gene »
 » ureC CDS (urease subunit alpha) »

2,150 2,160 2,170 2,180 2,190 2,200 2,210 2,220 2,230 2,240

tgtgactaccatgctggcgccgactggccccccaccggctccaacgccaccacctgacccccggcgagtggcacattggcaaatgcttcaagcggtagacg
 aactgatggtacgacccgcccgtgaccggggcggtggccgaggttgcggtggtggacgtggggggcgcctaccgtgtaaccgttttacgaagtctgccatctgc

» ureC gene »
 » ureC CDS (urease subunit alpha) »

2,250 2,260 2,270 2,280 2,290 2,300 2,310 2,320 2,330 2,340 2,350

acctgccatgaacatcgccctgctcggcaaaggcaacgccagcctgccggaagggtcgaagcgcagctggaagcggggcgcgatgggtctcaagctgcatgaagac
 tggacgggtactttagccggacgagccgtttccgttgcggtcggacggccttccgagcttcgcgtcgaccttcgcccgcgtacccagagttcgactacttctg

» ureC gene »
 » ureC CDS (urease subunit alpha) »

2,360 2,370 2,380 2,390 2,400 2,410 2,420 2,430 2,440 2,450 2,460

tggggcaccacccccctcgattgatacctgcttaagcgtggcgaaaagtacgatgtgcagatcgccattcacaccgatacgtcaacgaatccggctttgtgga
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» ureC gene »
 » ureC CDS (urease subunit alpha) »

2,470 2,480 2,490 2,500 2,510 2,520 2,530 2,540 2,550 2,560

agacaccctggcgccgtttaaaggcgccgattcacacctaccacaccgaaggcgcagggcgccatgccccggatatacctcaccgcctgctccaagagtagc
 tctgtgggaccgcccgaatttcccgccgtaagtgtggatggtgtggcttccgcgtccgcccgggtacggggcctataggagtggcggacgaggtttctcatgc

» ureC gene »
 » ureC CDS (urease subunit alpha) »

2,570 2,580 2,590 2,600 2,610 2,620 2,630 2,640 2,650 2,660 2,670

tgtgcccgtctccaccaaccacgcggccctacacgggtaacacatcgacgagcatctcgacatgctatggtttgccaccacctggacccaatatccccgaa
 acgacggcagaaggtggttgggggtgcgcccggatgtgccacttgtgtagctgctcgtagagctgtacgagtaccaaaccggtggtggacctgggggttatagggcctt

» ureC gene »
 » ureC CDS (urease subunit alpha) »

2,680 2,690 2,700 2,710 2,720 2,730 2,740 2,750 2,760 2,770 2,780

gatgtcgctttgaggattcacgattcggcgaacatcgccgctgaggatatttgcacgacctagggtgatctcgatgatcgccctccgactcccaggccat
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» ureC gene »
 » ureC CDS (urease subunit alpha) »

2,790 2,800 2,810 2,820 2,830 2,840 2,850 2,860 2,870 2,880

gggcccgtgggtgaagtggtctgccgcacctggcaaacgcccaaaaatgaaagtgcagcgtggcctgctgccggaagatgaagcgtggggggcgcacaacctgc
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» ureC gene »
 » ureC CDS (urease subunit alpha) »

2,890 2,900 2,910 2,920 2,930 2,940 2,950 2,960 2,970 2,980 2,990

gcgccaagcgttatatcgccaagtacacccatcaaccccgccattaccacggcattgccacgaagtcggatcgattgaagtcggttaagctggcgatttgggtctg
 cgcggttcgcaatatagcgggttcattgtgtagttggggcggtaatgggtgccgtaacgggtgcttcagcctagctaacttcagccattcgaccgcctaaaccacgac

»» ureC gene »»
 »» ureC CDS (urease subunit alpha) »»

3,000 3,010 3,020 3,030 3,040 3,050 3,060 3,070 3,080 3,090 3,100

tggaagcccgttttcttggcgtcaaaccgctgatcctaaaaggcggcatgattgccggtgacccatggcgaccccaacgcctccatccccacggcgagcc
 accttcgggcgaaagaaccgcagtttgggctgacttaggattttccgccgtactaacggccacgtgggtaccgctgggggtgagggttaggggtgagggtgctgg

»» ureC gene »»
 »» ureC CDS (urease subunit alpha) »»

3,110 3,120 3,130 3,140 3,150 3,160 3,170 3,180 3,190 3,200 3,210

ggtgcactaccgccccatgttcggcaccttggcctgcccagccagaccggctcaactttgtcagccaagcggcgattgacgcaggcattaaagagcgctgg
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»» ureC gene »»
 »» ureC CDS (urease subunit alpha) »»

3,220 3,230 3,240 3,250 3,260 3,270 3,280 3,290 3,300 3,310

gactacaaagcacgctttccgcttgaagaacgtgctggcgctgcccagcaaaaaagatatgaagctcaacgacgctgccagaactcaccgtcgaccgcaaacctac
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»» ureC gene »»
 »» ureC CDS (urease subunit alpha) »»

3,320 3,330 3,340 3,350 3,360 3,370 3,380 3,390 3,400 3,410 3,420

gaagtgcgctgacgagcgaactcctcacctgcaaacccgacggagctaccgctggcgagctgtatcacttgtttgaaatgtaggggtataccccacgtgacagc
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»» ureC gene »»
 »» ureC CDS (urease subunit alpha) »»

3,430 3,440 3,450 3,460 3,470 3,480 3,490 3,500 3,510 3,520 3,530

agagcagggagcagcccgtagagagggtcttttgcctggtggcaaaagtagctacagggatgtattcacagcgcctctcgtagggtgctcccggcgagcctc
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3,540 3,550 3,560 3,570 3,580 3,590 3,600 3,610 3,620 3,630

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 tttccgatatggtcctgctatagctacaactttgactaacttgccgagccgggtatctactcccgtggcggtcgtgtgagctgtgacgggaagctcgatcgcta

CTT34_16950 gene »»
 CTT34_16950 CDS (urease accessory protein UreE) »»

3,640 3,650 3,660 3,670 3,680 3,690 3,700 3,710 3,720 3,730 3,740

cgtgaaactgcggaattggccgctgaagacagccgctgggcgctcgtgaagcggctactgggagctctcgacctattaccaaaaaatgcagggtgcctagtga
gcactttgacgccttaaccggcgacttctgtcggcgaccgaggagcacttcgccgatgaccgctcagagctggataatggttttttacgtcccgcgacgacact

CTT34_16945 gene
CTT34_16945 CDS (urease accessory protein UreF)

4,500 4,510 4,520 4,530 4,540 4,550 4,560 4,570 4,580 4,590 4,600

agactcactcacgcccttgctaccggtgcaggctggctatgtgacctgtttgctggcggttaccagcgcggcatccccgtgcgccaagcgcagctcggctttg
tctgagtgagtgcgggaacgatggccacgtccgaccgatacactgggacaaacggaccgccgaatggtcgcgccgtaggggcacgcggttcgcgtcgagccgaaac

CTT34_16945 gene
CTT34_16945 CDS (urease accessory protein UreF)

4,610 4,620 4,630 4,640 4,650 4,660 4,670 4,680 4,690 4,700

gctggcggtggctggaaaaccagctcgcggtagcctgtaaagcgtccgctgggccacaccgctcccagcgcattatcgagcagttacgtggcgagctggtgaat
cgaccgcaccgaccttttgctgagcggccatcggacatttcgcgacggcgaccgggtgtggcgacgggtcgcgtaataagctcgtcaatgcaccgctcgaccactta

CTT34_16945 gene
CTT34_16945 CDS (urease accessory protein UreF)

4,710 4,720 4,730 4,740 4,750 4,760 4,770 4,780 4,790 4,800 4,810

gccgtcgagaagcccagcggctagacgatgacgagcttgccccgcctgcccggcgtcgcgctggccagcgcctacacgaaacccaatattcccgttgttttag
cggcagctcttccgggtcggcgtcgtactgctcgaaccggggcgcgacggccgagcgcgaccggtcgcgggatgtgctttgggttataaggcgcaacaatc

CTT34_16945 gene
CTT34_16945 CDS (urease accessory protein UreF)

4,820 4,830 4,840 4,850 4,860 4,870 4,880 4,890 4,900 4,910 4,920

aagctaacgagcgttgttatttaggagaaaatcatgactcactgtttacgcttggcgtgggtggccgggtcggttcaggtaaaaccgccctgctcaagcagctctg
ttcgattgctcgcaacaataaatcctcttttagtactgagtgacaaatgcgcaaccgacccaccggccagccaagtccattttggcgggacgagttcgtcgagac

ureG gene
ureG CDS (urease accessory protein UreG)

4,930 4,940 4,950 4,960 4,970 4,980 4,990 5,000 5,010 5,020

taccggctcgggaccactatgatatcgccgtcgtcaccaacgatatctataaccgtgaagatgccgatttctgctcaagcacgatgcgctgcccgccgaccgta
atggcgcgacgccctggtgatactatagcggcagcagtggttgctatagatatgggcacttctacggctaaaggacgagttcgtgctacgcgacggcggtggcact

ureG gene
ureG CDS (urease accessory protein UreG)

5,030 5,040 5,050 5,060 5,070 5,080 5,090 5,100 5,110 5,120 5,130

ttctcggcgtagaaaccggcggtgcccgcacacggcgattcgtgaagatgcctcgatgaacctagcggcgattgatgagctacacgccctcatccaagctggag
aagagccgcatctttggcccgccgacggcggtgtgcccgtaagcacttctacggagctacttggatcggcctaactactcgatgtcgggcagtagggttcgacctc

ureG gene
ureG CDS (urease accessory protein UreG)

5,140 5,150 5,160 5,170 5,180 5,190 5,200 5,210 5,220 5,230 5,240

ctggtgctggctcgagtctggcggcgataacctttccgccacgtttagccccgagctttctgatctgacgctttatgtgatcgcagtgctcggcaggcgacaaaatacc
gaccacgaccagctcagaccgccgctattggaaggcggtgcaaatcggggctcgaaagactagactgcaataactagctgcacagccgctccgctgtttatgg

» ureG gene »
» ureG CDS (urease accessory protein UreG) »

5,250 5,260 5,270 5,280 5,290 5,300 5,310 5,320 5,330 5,340 5,350

ccgcaaaggcggccccggcatcaccaaatcggatctgctgattatcaaaaaatcgacattgccgagcaggtgcacgcctcactggaggtgatggagcgcgactcga
ggcgtttccgccgggcccgtagtggttagcctagacgactaatagttgttttagctgtaacggctcgtccacgtgcggagtgacctcactacctcgcgctgagct

» ureG gene »
» ureG CDS (urease accessory protein UreG) »

5,360 5,370 5,380 5,390 5,400 5,410 5,420 5,430 5,440 5,450

aaaaaatgcgcgcgagcgcgccgttctgtttcaccaacctctacgatggcgtggggcttgaagagatcatccgcttcatctcgateaaaggcatgctggacgagcgt
tttttacgcgcccgtcgcgggcaagcacaagtggttggagatgtaccgcaccccgaacttctctagtaggcaagtaagagctatttccgtacgacctgctcga

» ureG gene »
» ureG CDS (urease accessory protein UreG) »

5,460 5,470 5,480 5,490 5,500 5,510 5,520 5,530 5,540 5,550 5,560

cgccccgagcggcccactgcatagCCAGGCATCAAATAAAACGAAAGGCTCAGTCGAAAGACTGGGCCTTTCGTTTTATCTGTTGTTTGTCCGGTGAACGCTCTCTAC
gcggcgctccgccggtgacgtatcGGTCCGTAGTTTATTTTCTTTCCGAGTCAGCTTCTGACCCGAAAGCAAATAGACAACAACAGCCACTTGCAGAGATG

» ureG gene »
» ureG CDS ...in UreG » Terminator (BBa_B0015) »

5,570 5,580 5,590 5,600 5,610 5,620 5,630 5,640 5,650 5,660 5,670

TAGAGTCACACTGGCTCACCTTCGGGTGGGCCTTCTGCGTTTATA
ATCTCAGTGTGACCGAGTGGAAGCCCACCCGAAAGACGCAAATAT

» Terminator (BBa_B0015) »

5,680 5,690 5,700 5,710